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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/450,491	11/29/1999	RYOICHI YOKOYAMA	YKJ-0024	7688

23413 7590 05/21/2003

CANTOR COLBURN, LLP
55 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

EXAMINER

ABDULSELAM, ABBAS I

ART UNIT	PAPER NUMBER
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2674

DATE MAILED: 05/21/2003

16

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/450,491

Applicant(s)

YOKOYAMA, RYOICHI

Examiner

Abbas I Abdulsalam

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 02 May 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

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DETAILED ACTION

Claim Rejections 35 U.S.C. 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-6, 9, 11-14 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tornqvist (USPN 5133036) in view of Ishii et al. (USPN 5321536) and Nishimura et al. (USPN 4297004).

Regarding claims 1 and 9, Tornqvist teaches the first electrode structure (9), luminous multilayered thin film structure (10, 11, 12). second electrode structure (13, 14). See fig 2, and 3. Tornqvist teaches about transparent second electrode structure containing parallel electrode conductors. Tornqvist also teaches that the second electrode structure is provided with a narrow stripe (14) of high electrical conductivity. Moreover, Tornqvist teaches about electroluminescent thin film structure of a display unit and the use of emission filter material. See column 1, lines 7-13, and Column 3, lines 55-65. Tornqvist teaches visible emissions achieved by connecting an electric field over two electrodes and light is produced in a phosphor material placed between the electrodes. See col. 1, lines 14-22. However, Tornqvist does not teach connection of a second electrode with a signal supply such that the second electrode is controlled separately from the first

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electrode. Ishii on the other hand teaches the use of a first electrode and a second electrode in a such a way that the second electrode is controllably connected to and separated from the signal line by the photosensitive section. See col. 4, lines 30-36.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify Tornqvist's display system to include Ishii's electrodes configuration with a signal line. One would have been motivated in view of the suggestion in Ishii that the desired connection between an electrode and a signal supply as well as separate control of the electrodes can be achieved by Ishii's electrodes configuration with the signal line. The use of electrodes in conjunction with a signal line helps function the liquid crystal display as taught by Ishii.

Tornqvist has been described above. However, Tornqvist does not teach a multi layer structure having a resistance lower than a resistance of a single layer of the second electrode material. Nishimura on the other hand teaches a multi-layer lead electrode structure having an electrode resistance smaller than the thin-film lead electrodes.

Therefore, it would have been obvious to one skilled in the art at the time the invention was made to modify Tornqvist's display system to adapt Nishimura's multi-layer lead electrode. One would have been motivated in view of the suggestion in Nishimura that the multi layer lead electrode is functionally equivalent to the desired multi layer structure. The use of multi layer lead electrode helps function liquid crystal display system as taught by Nishimura.

Regarding claims 3, and 11, Tornqvist teaches about a thin-film electrode layer, which is partly metallic or a metal alloy. See column 2, lines 22-33.

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Regarding claims 4 and 12, see Fig 3 (13, 14)

Regarding claims 5, and 13, Tornqvist teaches about layers (10, 11, 12) between first electrode (9) and second electrode (13, 14). See Column 3, lines 45-50, and Fig 2.

Regarding claims 6 and 14, Tornqvist teaches about photolithography and HCL etching. See, column 42-45, and 60-62.

2. Claims 2, 7-8 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tornqvist in view of Ishiguro et al. (USPN 6146928).

Tornqvist has been described above. However, Tornqvist does not teach a type of thin film transistors containing a polycrystalline silicon layer, and does not disclose an external signal supply device connected to light emission panel. Also, Tornqvist does not teach conducting materials of conductors in connection to a gate electrode, drain electrode, and source electrode. Ishiguro on the other hand teaches about a thin film transistor containing a polycrystalline silicon layer (17) with respect to gate electrode (19), source, and drain regions (20), See Fig 2(a), and Fig 2(b), column 4, lines 60-67, and column 5, lines 1-10. In addition Ishiguro teaches about external power source (1010) connected to liquid crystal panel (1006). See Fig 17. Therefore, it would have been obvious to one having skill in the art at the time the invention was made to modify Tornqvist's thin film matrix structure to include a polycrystalline silicon layer, use the same material for conductors as well as transistors, and connect an external power source to a

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light emission panel. One would have been motivated in view of Ishiguro that the desired polycrystalline silicon layer, external signal supply device, and the conductive material for the three electrodes (gate, drain, and source) are equivalent to a polycrystalline silicon layer, electric power source, and composing materials of a thin film transistor. The use of polycrystalline silicon layer, and electric power source, helps achieve a reliable thin film transistor as taught by Ishiguro.

Conclusion

3. The prior art made of record and not relied upon is considered to applicant's disclosure.

The following arts are cited for further reference.

U.S. Pat No. 5,710,454 to Wu

U.S. Pat No. 5,034,341 to Itoh

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4. Any inquiry concerning this communication or earlier communication from the examiner should be directed to **Abbas Abdulsalam** whose telephone number is **(703) 305-8591**. The examiner can normally be reached on Monday through Friday (9:00-5:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, **Richard Hjerpe**, can be reached at **(703) 305-4709**.

Any response to this action should be mailed to:

Commissioner of patents and Trademarks

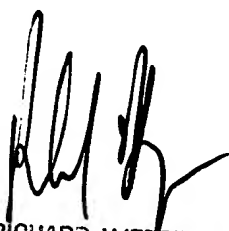
Washington, D.C. 20231

or faxed to:

(703) 872-9314

Hand delivered responses should be brought to crustal park II, Crystal Drive, Arlington, VA, Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology center 2600 customer Service office whose telephone number is (703) 306-0377.


RICHARD HJERPE
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600

Abbas Abdulsalam

Examiner

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